

Cellular Mast Emissions Survey: Ville Au Bas (Jersey)



DOCUMENT DETAILS

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Survey Engineer:	Louise Sands	
Report Compiled by:	Lauren Medhurst	
Checked and Approved by	Bachir Belloul	
Authorised for Distribution	Ravi Mondair	

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Executive Summary

CICRA regularly monitors radiowave emissions from the cellular masts in the Bailiwicks of Guernsey and Jersey to ensure the mobile network operators who operate their services from those masts comply with their license obligations in terms of power levels and that the emissions from the sites comply with internationally recognised standards and guidelines regarding Health & Safety limits for the public.

In 2017, CICRA commissioned iWireless Solutions to conduct the emission surveys at all sites within the two Bailiwicks. This report is for the Ville Au Bas site located in Jersey.

The Ville Au Bas site was used by a single operator at the time of the survey: JT J. Surveys were however conducted at all cellular frequency bands (800, 900, 1800, 2100 and 2600MHz) for all mobile cellular technologies (GSM, 3G and 4G) and for all three cellular operators as a routine procedure.

The survey established that the emissions around this site were very low and well below the safety limits for the public advised by internationally recognised standards.

The values shown hereafter are the maximum levels that were recorded around the site following a peak search. In most other locations, the levels were lower. The recorded values are only true at the time of testing and can go up or down depending on the level of user activity on the cell.

The Total Exposure Quotient for the site recorded across all detected cellular frequency bands is given at the bottom of the summary table below. A total Site EQ close to 1 (one) would mean that emissions at the site approach the limit advised by ICNIRP in their guidelines.

Site Name	Band [MHz]	Max E-field in band [V/m]	Operator at Max E-field	ICNIRP Limit Relative Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ville Au Bas	800	0.04602	JT J	845	1.10192E-05	1/ 90751
	900	1.161	JT J	36	0.001461202	1/ 684
	1800	0.1178	JT J	495	0.000106005	1/ 9433
	2100	0.0789	JT J	773	5.75794E-05	1/ 17367
	2600	0.002071	Sure J	29454	1.01E-07	1/ 9900942
Total Site EQ					0.001635907	1/ 611

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/611 and therefore remains well below the ICNIRP guidelines.

The graphs which follow show the activity on all the frequency bands surveyed. The plots are colour-coded for easy identification of the three main operators: Airtel J in red, Sure J in dark blue, and Jersey Telecom J in light blue.

The graphs are also supported by the equivalent statistical figures derived from the measured levels at the site for added clarity.

1. Site Details

1.1 Site Location

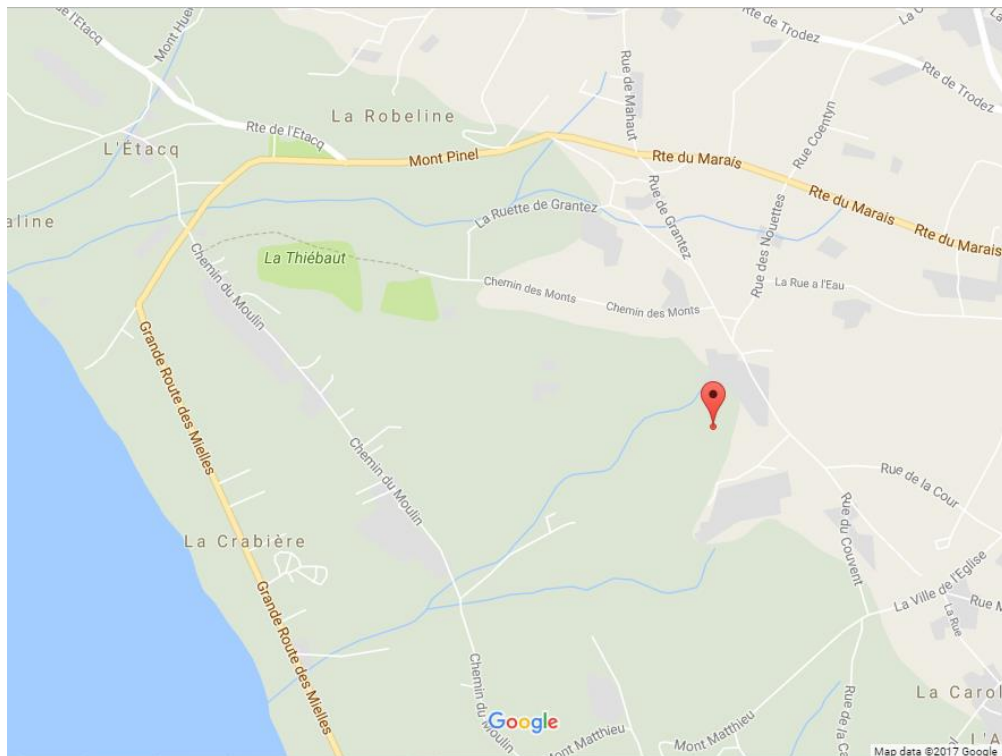


Figure 1 - Map of the Site Area

Site name	Ville Au Bas
Site address	La Rue De Grantez, Jersey
Site Latitude	N 49.22889
Site Longitude	W 02.21442

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	15m
Site type	Monopole
Description	The Monopole at Ville Au Bas is located in the field within shrubbery; access is open to the public.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location



Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

As part of the peak search procedure, spot measurements were taken at locations around the site, as shown on the above sketch. The reported spectrum scans were taken at the peak location (shown in red above) where the highest readings were recorded. The spectrum readings reported further down this report were recorded over a period of 6 minutes as advised by ICNIRP.

2. Survey Results

2.1 800 MHz Band

The graph for the 800 MHz activity is shown below with the E-field strength levels measured at the site plotted on a logarithmic scale.

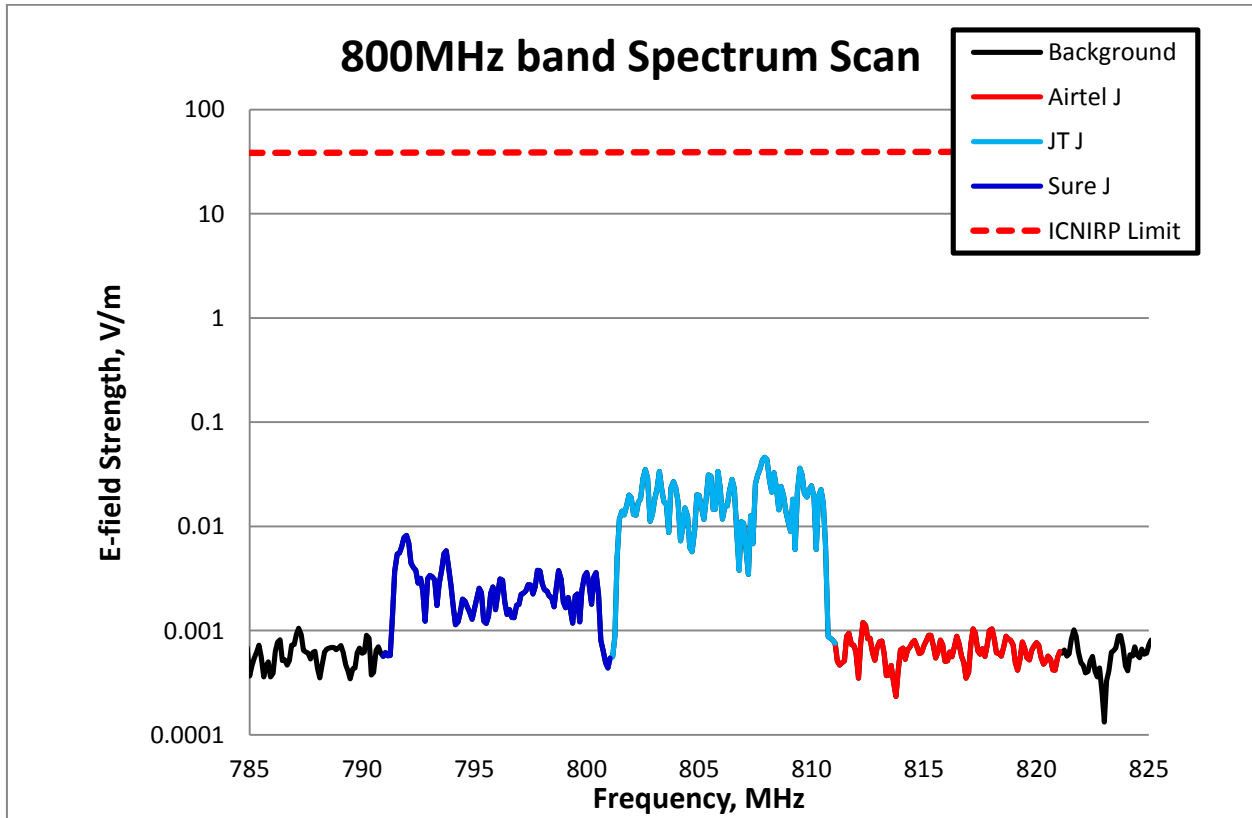


Figure 4 - 800MHz band Spectrum Scan

The red line on the scan represents the Airtel activity, the light blue is JT and the dark blue is Sure. ICNIRP's Reference Level for the General Public is also shown as the straight dashed line at the top of the graph. For clarity, each step on the vertical axis represents a 10-fold increase. The same scaling and colour scheme will be used throughout this report.

No field level recorded across the band was higher than 0.04602 V/m (JT J), which is 845 times smaller than the ICNIRP Reference level. The Exposure Quotient results for the 800MHz band are shown below:

Site Name	Operator	Band [MHz]	Max E-field Strength [V/m]	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ville Au Bas	Airtel J	800	0.001197	32490	1.22813E-08	1/ 81424360
	JT J		0.04602	845	1.07762E-05	1/ 92797
	Sure J		0.008187	4750	2.30701E-07	1/ 4334623
total band EQ					1.10192E-05	1/ 90751

Table 2– 800MHz band Exposure Quotient at Ville Au Bas

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

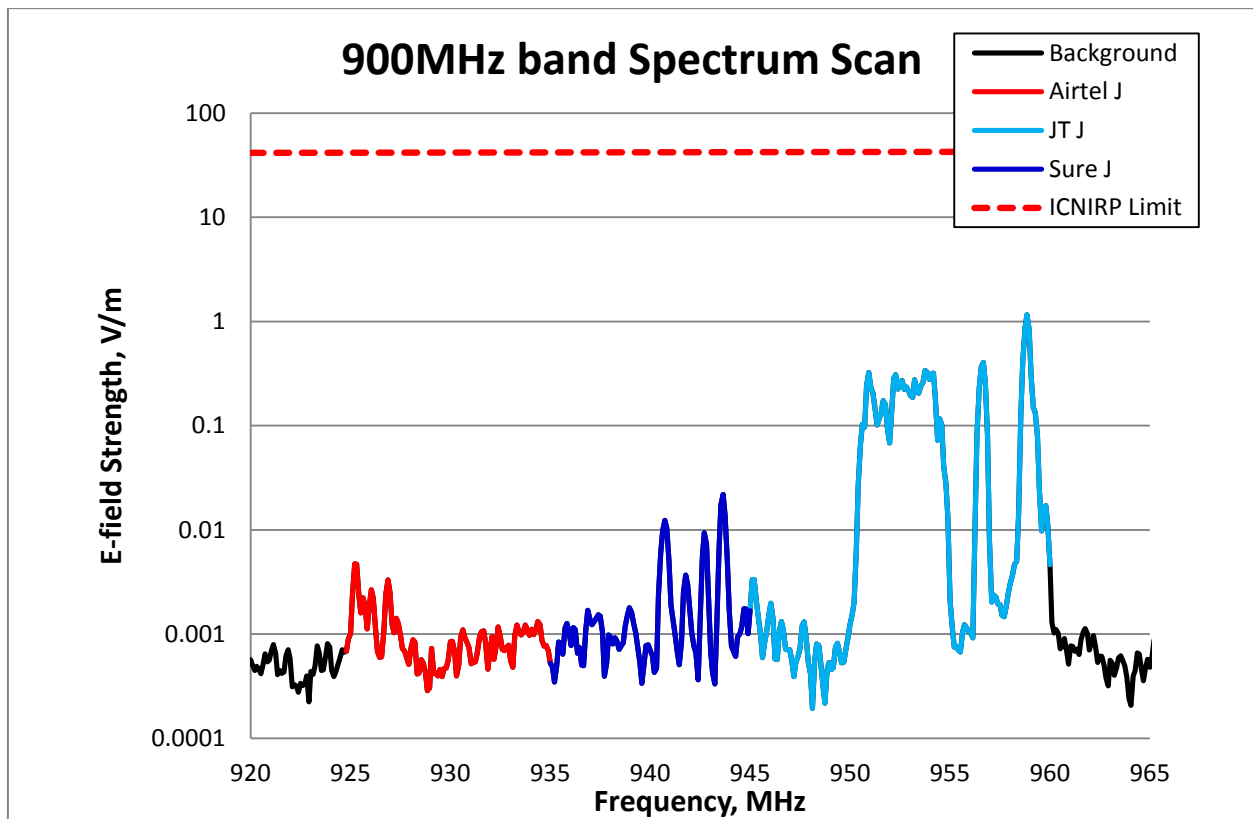


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 1.161 V/m (JT J), which is 36 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 900MHz band are shown below:

Site Name	Operator	Band [MHz]	Max E-field Strength [V/m]	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ville Au Bas	Airtel J	900	0.004717	8745	4.37345E-08	1/ 22865221
	JT J		1.161	36	0.001460688	1/ 685
	Sure J		0.02193	1881	4.70613E-07	1/ 2124886
total band EQ					0.001461202	1/ 684

Table 3– 900MHz band Exposure Quotient at Ville Au Bas

2.3 1800 MHz Band

The graph for the 1800 MHz activity around the site is shown below:

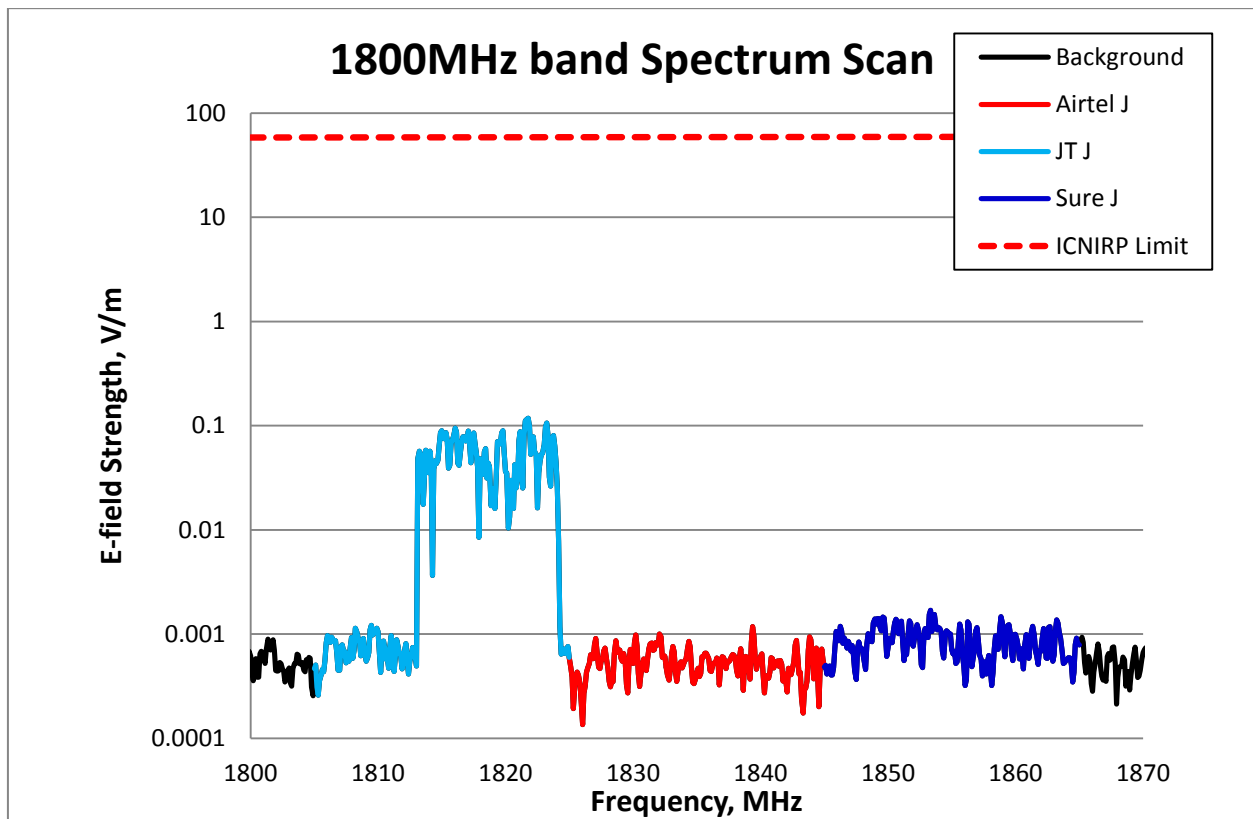


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1178 V/m (JT J), which is 495 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 1800MHz band are shown below:

Site Name	Operator	Band [MHz]	Max E-field Strength [V/m]	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ville Au Bas	Airtel J	1800	0.001182	49354	1.67374E-08	1/ 59746603
	JT J		0.1178	495	0.000105946	1/ 9439
	Sure J		0.001693	34457	4.22654E-08	1/ 23660002
total band EQ					0.000106005	1/ 9433

Table 4 – 1800MHz band Exposure Quotient at Ville Au Bas

2.4 2100MHz Band

The graph for the UMTS activity around the site is shown below:

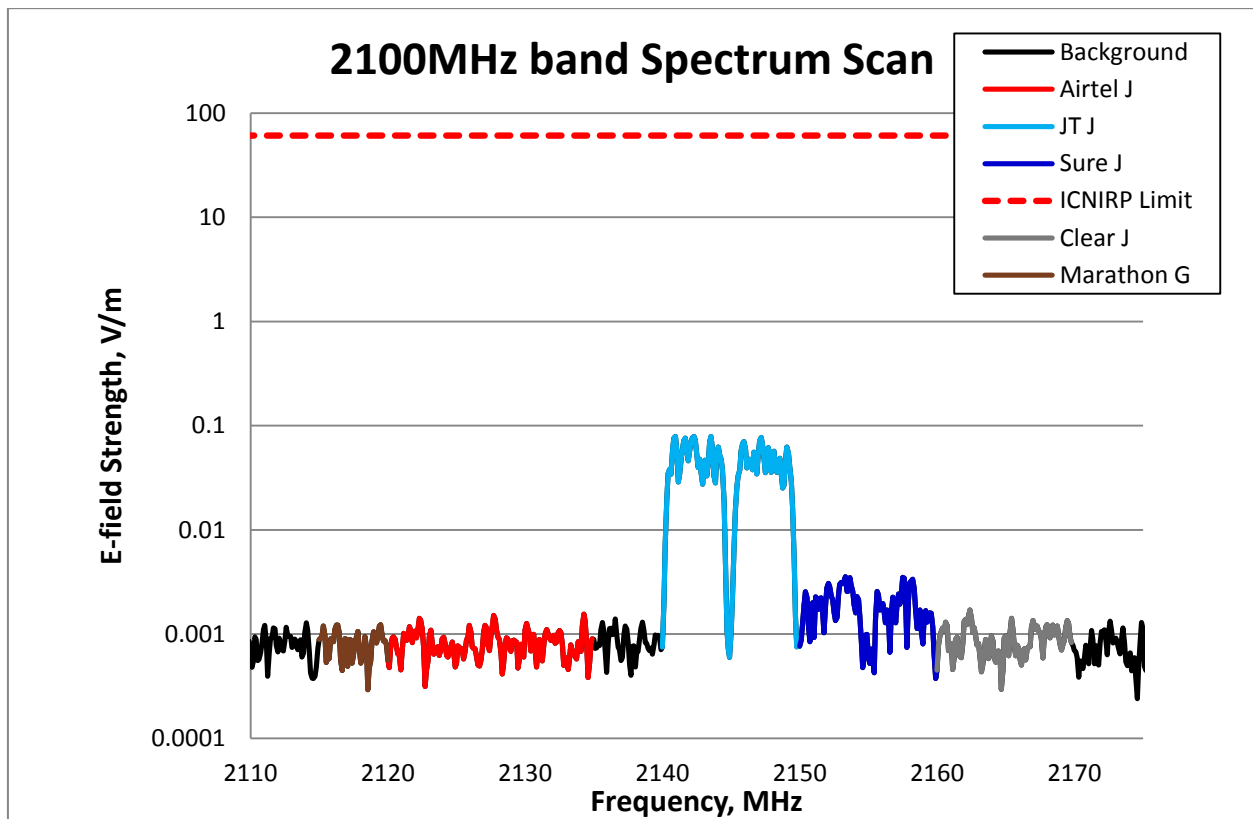


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.0789 V/m (JT J), which is 773 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 2100MHz band are shown below:

Site Name	Operator	Band [MHz]	Max E-field Strength [V/m]	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ville Au Bas	Airtel J	2100	0.00156	39103	2.80879E-08	1/ 35602562
	Clear J		0.0017	35882	2.25079E-08	1/ 44428860
	JT J		0.0789	773	5.74157E-05	1/ 17417
	Marathon J		0.001234	49433	9.41021E-09	1/ 106267596
	Sure J		0.003551	17178	1.03711E-07	1/ 9642214
total band EQ					5.75794E-05	1/ 17367

Table 5 – 2100MHz band Exposure Quotient at Ville Au Bas

2.5 2600MHz band

The graph for the 2600MHz band activity around the site is shown below:

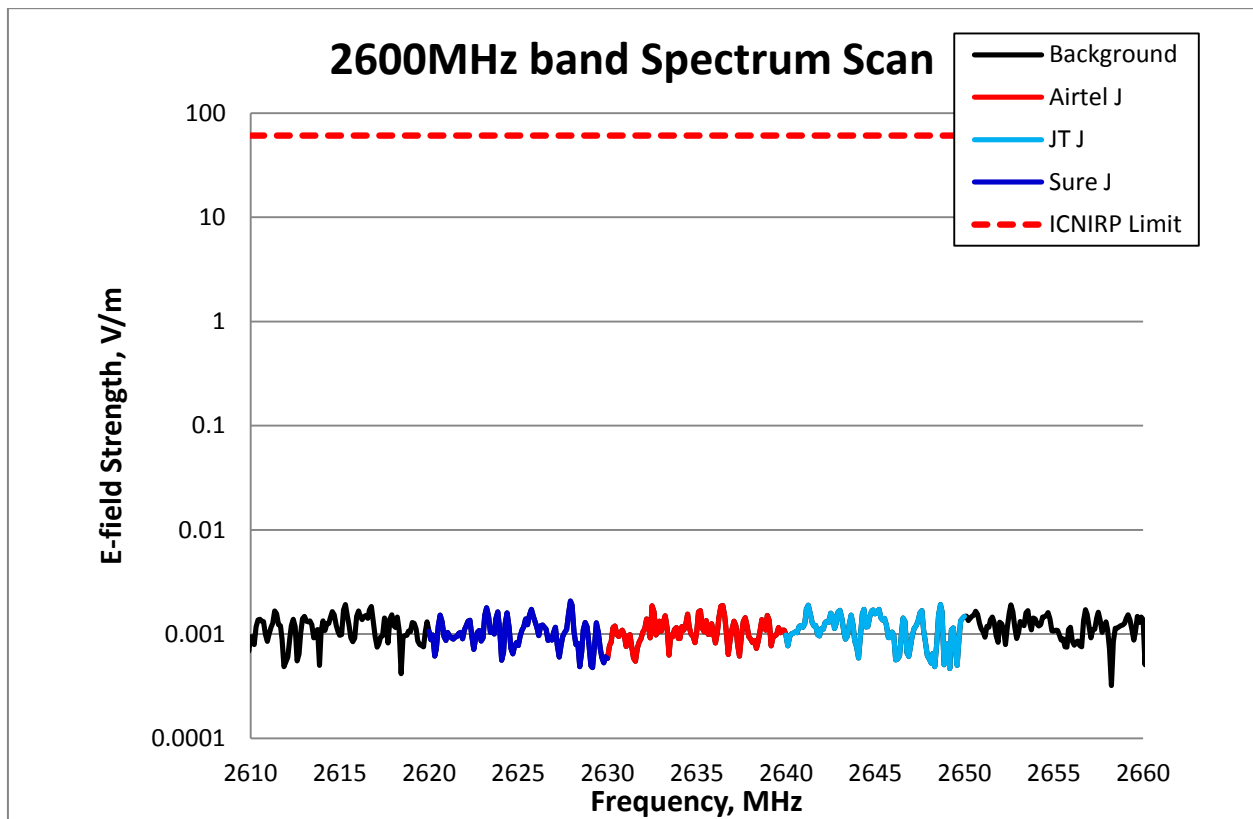


Figure 8 – 2600MHz band Spectrum Scan

No activity was recorded in the 2600MHz as no operator appears to transmit in this band at this site.

The Exposure Quotient results for the 2600MHz band are shown below:

Site Name	Operator	Band [MHz]	Max E-field Strength [V/m]	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ville Au Bas	Airtel J	2600	0.00188	32447	3.24705E-08	1/ 30797149
	JT J		0.001921	31754	3.75828E-08	1/ 26607940
	Sure J		0.002071	29454	3.09472E-08	1/ 32313120
total band EQ					1.01E-07	1/ 9900942

Table 6 – 2600MHz band Exposure Quotient at Ville Au Bas

End